

# Add eq. together to eliminate one of the variables

## Solving Systems of Equations by Elimination

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each system by elimination.

Hand 1)  $x - 2y = -12$   
 $+ 4x + 8y = -24$

$(6, -6)$   
 $\frac{6y}{6} = \frac{-36}{6}$   
 $y = -6$   
 plug back in

Hand 3)  $x - y = 11$   
 $2x + y = 19$

$4x + 8(-6) = -24$

$4x - 48 = -24$   
 $+48 \quad +48$

$\frac{4x}{4} = \frac{24}{4}$   
 $x = 6$

Hand 2)  $4x + 8y = 20$   
 $-4x + 2y = -30$

H 4)  $-6x + 5y = 1$   
 $6x + 4y = -10$

H 5)  $\begin{matrix} -2x - 9y = -25 \\ -4x - 9y = -23 \end{matrix} \Rightarrow \begin{matrix} 2x + 9y = 25 \\ -4x - 9y = -23 \end{matrix}$   
 $\underline{-2x = 2}$

H 6)  $8x + y = -16$   
 $-3x + y = -5$

H 7)  $-6x + 6y = 6$   
 $-6x + 3y = -12$

H 8)  $7x + 2y = 24$   
 $8x + 2y = 30$

H 9)  $5x + y = 9$   
 $10x - 7y = -18$

10)  $-4x + 9y = 9$   
 $x - 3y = -6$

Calc 11)  $\begin{matrix} -3x + 7y = -16 \\ -9x + 5y = 16 \end{matrix} \Rightarrow \begin{bmatrix} -3 & 7 & -16 \\ -9 & 5 & 16 \end{bmatrix}$   
 $\begin{bmatrix} 1 & 0 & -4 \\ 0 & 1 & -4 \end{bmatrix} \Rightarrow \begin{matrix} x = -4 \\ y = -4 \end{matrix}$

12)  $-7x + y = -19$   
 $-2x + 3y = -19$

$$\begin{aligned} 13) \quad 16x - 10y &= 10 \\ -8x - 6y &= 6 \end{aligned}$$

$$\begin{aligned} 14) \quad 8x + 14y &= 4 \\ -6x - 7y &= -10 \end{aligned}$$

$$\begin{aligned} 15) \quad -4x - 15y &= -17 \\ -x + 5y &= -13 \end{aligned}$$

$$\begin{aligned} 16) \quad -x - 7y &= 14 \\ -4x - 14y &= 28 \end{aligned}$$

Calc

$$\begin{aligned} 17) \quad -7x - 8y &= 9 \\ -4x + 9y &= -22 \end{aligned}$$

$$\begin{aligned} 18) \quad 5x + 4y &= -30 \\ 3x - 9y &= -18 \end{aligned}$$

$$\begin{aligned} 19) \quad -4x - 2y &= 14 \\ -10x + 7y &= -25 \end{aligned}$$

Calc

$$\begin{aligned} 20) \quad h + s &= 87 \\ 0.5h + 1.5s &= 78.50 \end{aligned}$$

$$\begin{aligned} 21) \quad 13b + 4t &= 487 \\ 6b + 2t &= 232 \end{aligned}$$

Calc

$$\begin{aligned} 22) \quad x - 2y + 3z &= 7 \\ 2x + y + z &= 4 \\ -3x + 2y - 2z &= -10 \end{aligned}$$

Calc

$$\begin{aligned} 23) \quad -3x + 2y - 6z &= 6 \\ 5x + 7y - 5z &= 6 \\ x + 4y - 2z &= 8 \end{aligned}$$

Calc

$$\begin{aligned} 24) \quad 4b + 7t + d &= 13.50 \\ b &= 2t \\ -b &= 0.50 \end{aligned}$$

3x4

$$\begin{bmatrix} 4 & 7 & 1 & 13.5 \\ 1 & -2 & 0 & -0.25 \\ -1 & 0 & 1 & 0.5 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 & 1.4375 \\ 0 & 1 & 0 & 0.84375 \\ 0 & 0 & 1 & 1.9375 \end{bmatrix}$$

b t d